8th GRADE
MAIN RANGEFINDER
4

It is important that you show or explain how you solved the problems on this assessment. If you use a calculator, show how you set up the math.

1. The Student Council is responsible for planning the Winter Dance. The dance expenses and ticket prices are as follows:

Advanced communication skills

DANCE EXPENSES	
DJ (for first hour)	$155.00
DJ (for each additional hour)	$100.00
Decorations	$200.00 total
Chaperones	$36.00 per Chaperone

TICKET SALES	
$2.50	With Activity Card
$3.00	Without Activity Card

a. Find the total dance expenses: a DJ for 4 hours, decorations, and 6 chaperones. *Show or explain how you found your answer.*

100 × 3 = 300; 155 + 300 = 455; 36 × 6 = 216; 455 + 200 + 216 =

total dance expense: DJ $455; Decorations $200; chaperones-6 $216; total $871

b. If 300 tickets **with** Activity Cards and 200 tickets **without** Activity Cards were sold for the dance, how much money would be received from the ticket sales? *Show or explain how you found your answer.*

300 × 2.50 = $750

200 × 3.00 = $600

Ticket sales: With card $750; w/out card $600; TOTAL $1,350

Effective problem-solving strategies

c. Find the profit (money left after paying expenses) from the dance. *Show or explain how you found your answer.*

$1,350 (from ticket sales) − 871 (total expenses) = $479

$479 profit

d. In part c above, the profit from the dance represents what percent of the ticket sales? *Show or explain how you found your answer.*

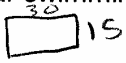
1,350 | 479 ≈ 35%

≈ 35% of the ticket sales

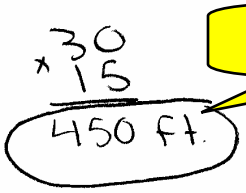
Advanced use of symbols

Read problems 2, 3, 4, and 5 on this and the next two pages.
Select three problems to answer. Answer ALL of the parts of the three problems you select to answer.
Cross out the one problem that you do not choose to answer.

2. In your backyard you install a rectangular swimming pool. The dimensions of the pool are 30 feet by 15 feet.

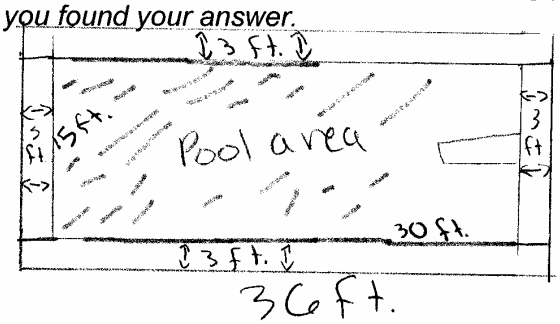


a. What is the area of the pool? *Show or explain how you found your answer.*



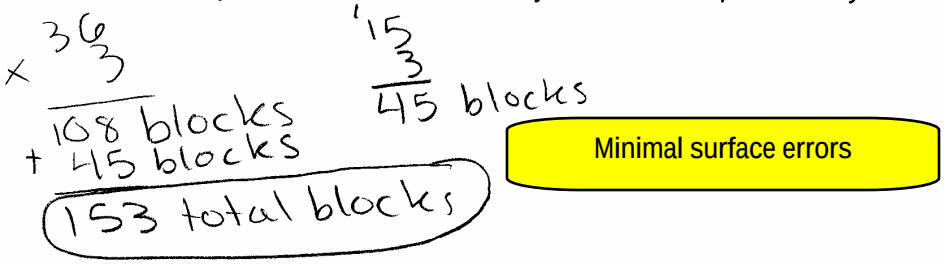
Minimal surface errors

b. You are going to put a concrete block walkway around the entire pool. The walkway will be 3 feet wide. Draw and label a diagram of the swimming pool and walkway. *Show or explain how you found your answer.*



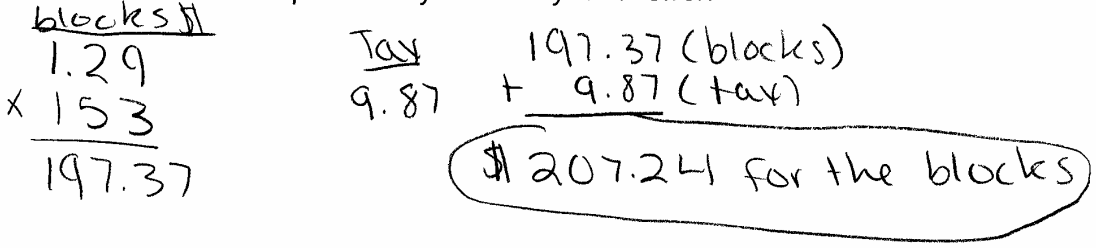
Advanced understanding of situation

c. The walkway will be constructed using blocks. Each block is 1 square foot. How many blocks will be required to build the walkway? *Show or explain how you found your answer.*

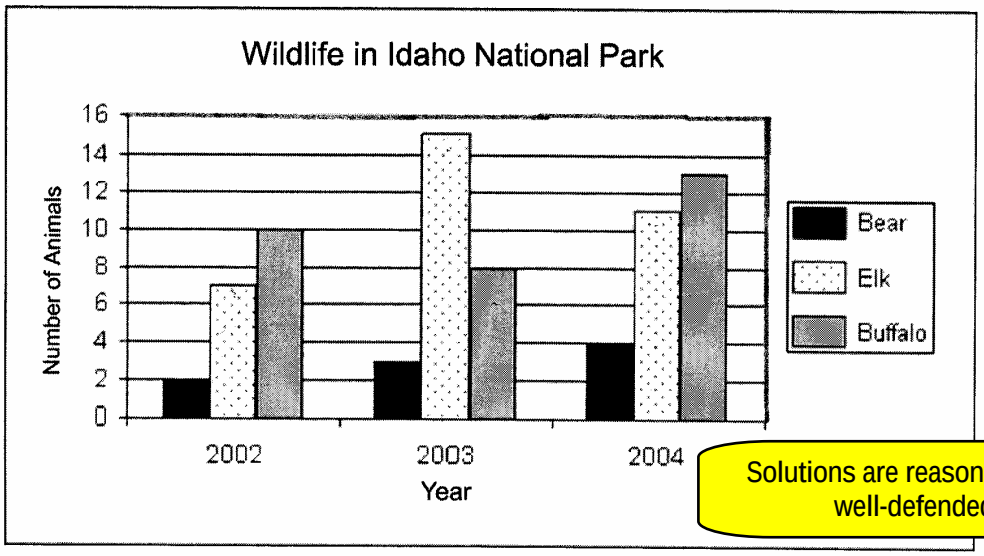


Minimal surface errors

d. The blocks cost $1.29 each and the sales tax is 5%. What is the total cost for the blocks including sales tax? *Show or explain how you found your answer.*



3. For the past three years Rebecca's family has visited Idaho National Park and each year they saw bear, elk, and buffalo. Use the graph below to answer the following questions.



Solutions are reasonable and well-defended

a. Which year did Rebecca's family see the most animals? *Show or explain how you found your answer.*

2002: 10, 7, 2 → 19

2003: 15, 8, 3 → 26

2004: 13, 11, 4 → 28

2004

b. What is the ratio of bear to elk in 2003? *Show or explain how you found your answer.*

3:15 or 1:5

I figured this out by looking at the numbers on the diagram (graph).

c. What is the mean (average) of the number of elk seen during the three years? *Show or explain how you found your answer.*

+ 7 in 2002
+ 15 in 2003
+ 11 in 2004
33 total

3 (number of years) $\overline{)33}$ (total) = 11

11 average per year

d. If the pattern of bear sightings continues, how many bears would Rebecca's family expect to see in 2005? *Show or explain how you found your answer.*

2002 → 2 | 2003 → 3 | 2004 → 4 | 2005 → 5

5

The pattern is just going up 1 each year. So I followed the pattern.

4. A golfer is on the tee box of the first hole and is ready to hit the ball. The distance from the tee box to the hole is 250 yards. He hits the ball and it travels 75 yards. On his second hit the ball travels 80 yards and on his third hit the ball travels 85 yards.

a. After the three hits, what is the remaining distance to the hole? *Show or explain how you found your answer.*

b. What fraction of the distance to the hole was the first hit? *Show or explain how you found your answer.*

c. If it took three seconds before the ball hit the ground on the first hit, what rate (speed) was the ball traveling? *Show or explain how you found your answer.*

d. If the golfer, instead, made a hole-in-one on the first hit and the ball travels at the same rate (speed) as in part c above, how long would it take for the ball to travel to the hole? *Show or explain how you found your answer.*

Appropriate processes accurately completed

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5. Russell opened a bag of Fruity Chews that contained 3 red, 2 orange, 4 green, 6 yellow, and 9 purple candies.

a. Russell took a candy out of the bag without looking. What is the probability that the candy was red? *Show or explain how you found your answer.*

3:24 or (1:8)

3+2+4+6+9 = 24

I added up all of the candies and then I put the # of reds in front of that

b. What percent of the candies in the original bag was red? *Show or explain how you found your answer.*

3+2+4+6+9 (candies)
24 total

≈13%

c. What is the probability he will take a red or yellow candy from the original bag? *Show or explain how you found your answer.*

9:24 or (3:8)

I used the number of candies total and put the number of reds and yellows before it